

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A computer readable ~~An~~ information record medium onto which is recorded a whole stream including a plurality of partial streams each comprising a series of content information ~~is multi recorded by a unit of a packet that is a physically accessible unit,~~ said medium comprising:

an object data file for storing object data comprising a plurality of packets each storing a piece of the content information ~~and being multiplexed by the unit of the packet;~~ and

~~an object information file for storing association definition information to define a relationship between multiplexed packets and the plurality of partial streams, as reproduction control information to control a reproduction of said object data file,~~ wherein

the plurality of partial streams include one or more ~~a~~ ~~plurality of~~ video streams comprising a plurality of angle video informations corresponding to a plurality of viewpoints,

each of the plurality of angle video informations comprises an assembly of minimum image units, which are ~~individually reproducible and~~ defined by a predetermined standard,

each of the minimum image units is divided and stored into the packets ~~in said object data file~~, and

~~in the object data file~~, a switch unit as a logical section of the video stream ~~for an angle switching on a reproduction time scale~~ is defined such that the plurality of packets for dividing and storing a same minimum image unit does not extend over a boundary of the switch unit, and such that a minimum image unit reproducible without using another minimum image unit belonging to an anterior switch unit extending over the boundary of the switch unit is arranged as a first minimum image unit of the switch unit.

2. (currently amended) The computer readable information record medium according to claim 1, wherein the minimum image unit is a GOP (Group of Picture) based on a MPEG (Moving Picture Experts Group) standard.

3. (currently amended) The computer readable information record medium according to claim1, wherein the switch unit is defined by position information, the position information indicating a head address of the switch unit.

4. (currently amended) The computer readable information record medium according to claim 3, wherein the position information is stored for each switch unit, in a switch unit address table~~constructed in said object information file.~~

5. (currently amended) The computer readable information record medium according to claim 3, wherein the position information is stored for each switch unit, in a navigation packet forming a part of the partial streams in said object data file.

6. (currently amended) The computer readable information record medium according to claim 5, wherein the position information as for anterior n (n is natural number equal to or more than 1) switch units and posterior m (m is natural number equal to or more than 1) switch units, with respect to a switch unit to which the navigation packet is belonged as a standard, is stored in the navigation packet.

7. (currently amended) The computer readable information record medium according to claim 5, wherein the navigation packet is arranged as a head packet of the switch unit.

8. (currently amended) The computer readable information record medium according to claim 3, wherein the position information is a serial number of the packets or a PTS (Presentation Time Stamp).

9. (currently amended) The computer readable information record medium according to claim 1, further comprising an object information file for storing association definition information to define a relationship between multiplexed packets and the plurality of partial streams, as reproduction control information to control a reproduction of said object data file,

wherein the association definition information has table information, the table information indicating, for each partial stream, packet identification numbers assigned specifically to a plurality of packets multiplexed at a same time.

10. (currently amended) The computer readable information record medium according to claim 1, further comprising a reproduction sequence file for storing reproduction sequence information to define a reproduction sequence of the object data.

11. (currently amended) An information record apparatus for recording ~~multi-recording~~ a whole stream including a plurality of partial streams each comprising a series of content information ~~by a unit of a packet that is a physically accessible unit,~~ onto an information record medium, said apparatus comprising:

a first record device for recording an object data file, the object data file storing object data comprising a plurality of packets each storing a piece of the content information ~~and being multiplexed by the unit of the packet;~~ and

~~a second record device for recording an object information file, the object information file storing association definition information to define a relationship between multiplexed packets and the plurality of partial streams, as reproduction control information to control a reproduction of said object data file, wherein~~

the plurality of partial streams include one or more ~~a~~
~~plurality of~~ video streams comprising a plurality of angle video
informations corresponding to a plurality of viewpoints,

each of the plurality of angle video informations
comprises an assembly of minimum image units, which are
~~individually reproducible and~~ defined by a predetermined
standard,

each of the minimum image units is divided and stored
into the packets ~~in said object data file~~, and

~~in the object data file~~, a switch unit as a logical
section of the video stream ~~for an angle switching on a~~
~~reproduction time scale~~ is defined such that the plurality of
packets for dividing and storing a same minimum image unit does
not extend over a boundary of the switch unit, and such that a
minimum image unit reproducible without using another minimum
image unit belonging to an anterior switch unit extending over
the boundary of the switch unit is arranged as a first minimum
image unit of the switch unit.

12. (currently amended) An information record method of
~~multi-recording~~ recording a whole stream including a plurality of
partial streams each comprising a series of content information
~~by a unit of a packet that is a physically accessible unit~~, onto
an information record medium, said method comprising:

a first record process of recording an object data file via an information record reproduction apparatus, the object data file storing object data comprising a plurality of packets each storing a piece of the content information ~~being multiplexed by the unit of the packet;~~ and

~~a second record process of recording an object information file, the object information file storing association definition information to define a relationship between multiplexed packets and the plurality of partial streams, as reproduction control information to control a reproduction of said object data file, wherein~~

the plurality of partial streams include one or more a ~~plurality of~~ video streams comprising a plurality of angle video informations corresponding to a plurality of viewpoints,

each of the plurality of angle video informations comprises an assembly of minimum image units, which are ~~individually reproducible and~~ defined by a predetermined standard,

each of the minimum image units is divided and stored into the packets ~~in said object data file,~~ and

~~in the object data file,~~ a switch unit as a logical section of the video stream for an angle switching on a reproduction time scale is defined such that the plurality of packets for dividing and storing a same minimum image unit does not extend over a boundary of the switch unit, and such that a minimum image unit reproducible without using another minimum image unit belonging to an anterior switch unit extending over the boundary of the switch unit is arranged as a first minimum image unit of the switch unit.

13. (currently amended) An information reproduction apparatus for reproducing the information record medium according to claim 1, said apparatus comprising:

a reproduction device for reproducing said object data file ~~and said object information file;~~

an input device for inputting externally an instruction for an angle switching; and

a control device for controlling the reproduction device to reproduce a video stream relating to one angle video information ~~in said object data file, on the basis of the association definition information included in said object information file reproduced by said reproduction device,~~ and to switch from a reproduction of a video stream relating to said one angle video information to a reproduction of a video stream relating to another angle video information, at a boundary of the switch unit, in accordance with the instruction for the angle switching inputted via said input device.

14. (currently amended) An information reproduction method of reproducing the information record medium according to claim 1 and implemented by an information reproduction apparatus having (i) a reproduction device for reproducing said object data file ~~and said object information file~~ and (ii) an input device for inputting externally an instruction for an angle switching, said method comprising:

a first control process of controlling the reproduction device to reproduce a video stream relating to one angle video information ~~in said object data file, on the basis of the association definition information included in said object information file reproduced by said reproduction device,~~ and

a second control process of controlling the reproduction device to switch from a reproduction of a video stream relating to said one angle video information to a reproduction of a video stream relating to another angle video information, at a boundary of the switch unit, in accordance with the instruction for the angle switching inputted via said input device.

15. (currently amended) An information record reproduction apparatus for ~~multi-recording~~ recording and reproducing a whole stream including a plurality of partial streams each comprising a series of content information ~~by a unit of a packet that is a physically accessible unit~~, onto an information record medium, said apparatus comprising:

a first record device for recording an object data file, the object data file storing object data comprising a plurality of packets each storing a piece of the content information ~~and being multiplexed by the unit of the packet;~~ and

~~a second record device for recording an object information file, the object information file storing association definition information to define a relationship between multiplexed packets and the plurality of partial streams, as reproduction control information to control a reproduction of said object data file, wherein~~

the plurality of partial streams include one or more ~~a~~
~~plurality of~~ video streams comprising a plurality of angle video
informations corresponding to a plurality of viewpoints,

each of the plurality of angle video informations
comprises an assembly of minimum image units, which are
~~individually reproducible and~~ defined by a predetermined
standard,

each of the minimum image units is divided and stored
into the packets ~~in said object data file~~, and

in the object data file, a switch unit as a logical
section of the video stream ~~for an angle switching on a~~
~~reproduction time scale~~ is defined such that the plurality of
packets for dividing and storing a same minimum image unit does
not extend over a boundary of the switch unit, and such that a
minimum image unit reproducible without using another minimum
image unit belonging to an anterior switch unit extending over
the boundary of the switch unit is arranged as a first minimum
image unit of the switch unit,

said apparatus further comprising:

a reproduction device for reproducing said object data
~~file and said object information file;~~

an input device for inputting externally an instruction
for an angle switching; and

a control device for controlling the reproduction device to reproduce a video stream relating to one angle video information in said object data file, ~~on the basis of the association definition information included in said object information file reproduced by said reproduction device,~~ and to switch from a reproduction of a video stream relating to said one angle video information to a reproduction of a video stream relating to another angle video information, at a boundary of the switch unit, in accordance with the instruction for the angle switching inputted via said input device.

16. (currently amended) An information record reproduction method of ~~multi-recording~~ recording and reproducing a whole stream including a plurality of partial streams each comprising a series of content information ~~by a unit of a packet that is a physically accessible unit,~~ onto an information record medium and implemented by an information record reproduction apparatus having (i) a reproduction device for reproducing an object data file ~~and an object information file~~ and (ii) an input device for inputting externally an instruction for an angle switching, said method comprising:

a first record process of recording the object data file via an information record reproduction apparatus, the object data file storing object data comprising a plurality of packets each storing a piece of the content information ~~and being multiplexed by the unit of the packet; and~~

~~a second record process of recording an object information file, the object information file storing association definition information to define a relationship between multiplexed packets and the plurality of partial streams, as reproduction control information to control a reproduction of said object data file, wherein~~

the plurality of partial streams includes one or more a ~~plurality of~~ video streams comprising a plurality of angle video informations corresponding to a plurality of viewpoints,

each of the plurality of angle video informations comprises an assembly of minimum image units, which are ~~individually reproducible and~~ defined by a predetermined standard,

each of the minimum image units is divided and stored into the packets ~~in said object data file, and~~

~~in the object data file,~~ a switch unit as a logical section of the video stream for an angle switching on a reproduction time scale is defined such that the plurality of packets for dividing and storing a same minimum image unit does not extend over a boundary of the switch unit, and such that a minimum image unit reproducible without using another minimum image unit belonging to an anterior switch unit extending over the boundary of the switch unit is arranged as a first minimum image unit of the switch unit,

said method further comprising:

a first control process of controlling the reproduction device to reproduce a video stream relating to one angle video information in said object data file, ~~on the basis of the association definition information included in said object information file reproduced by said reproduction device,~~ and

a second control process of controlling the reproduction device to switch from a reproduction of a video stream relating to said one angle video information to a reproduction of a video stream relating to another angle video information, at a boundary of the switch unit, in accordance with the instruction for the angle switching inputted via said input device.

17. (~~currently amended~~~~original~~) A computer readable recording medium with a computer program recorded thereon for a record control to control a computer disposed at the information record apparatus according to claim 11, said program making the computer function as at least a part of the first record device ~~and the second record device.~~

18. (original) A computer readable recording medium with a computer program recorded thereon for a reproduction control to control a computer disposed at the information reproduction apparatus according to claim 13, said program making the computer function as at least a part of the reproduction device, the input device and the control device.

19. (currently amended) A computer readable recording medium with a computer program recorded thereon for a record reproduction control to control a computer disposed at the information record reproduction apparatus according to claim 15, said program making the computer function as at least a part of the first record device, ~~the second record device,~~ the reproduction device, the input device and the control device.

20. (currently amended) A computer readable recording medium with a data structure including a control signal, wherein a whole stream including a plurality of partial streams each comprising a series of content information is ~~multi-recorded~~ recorded by a unit of a packet that is a physically accessible unit, said structure comprising:

an object data file for storing via an information record reproduction apparatus object data comprising a plurality of packets each storing a piece of the content information ~~and being multiplexed by the unit of the packet;~~ and

~~an object information file for storing association definition information to define a relationship between multiplexed packets and the plurality of partial streams, as reproduction control information to control a reproduction of said object data file, wherein~~

the plurality of partial streams include one or more ~~a plurality of~~ video streams comprising a plurality of angle video informations corresponding to a plurality of viewpoints,

each of the plurality of angle video informations comprises an assembly of minimum image units, which are ~~individually reproducible and defined by on the basis of a~~ predetermined standard and reproducible independently,

each of the minimum image units is divided and stored into the packets ~~in said object data file~~, and

~~in the object data file,~~ a switch unit as a logical section of the video stream for an angle switching on a reproduction time scale is defined so such that the plurality of packets for dividing and storing ~~the divided minimum image unit pieces obtained by dividing~~ a same minimum image unit does not extend over a boundary of the switch unit, and such that a minimum image unit reproducible without using another minimum image unit belonging to an anterior switch unit extending over the boundary of the switch unit is arranged as a first minimum image unit of the switch unit.